

UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122 A/B, or Math 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I, or Chemistry 161/163	CHM 151IN
ENGL 101 or 107 or 109H First Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210IN
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
Tier I General Education	AGEC-S
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
CE 214 Statics	ENG 210
MATH 223 Vector Calculus	MAT 241
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	PHY 216IN
<b>AME 209 Computer Programming in Aerospace and Mechanical Engineering</b>	<b>UA only</b>
AME 211 Computer Aided Drafting and Manufacturing	ENG 211IN
<b>4th Semester</b>	
AME 230 Thermodynamics	ENG 232
AME 250 Dynamics	ENG 220
MATH 254 Intro to Ordinary Differential Equations	MAT 262
Tier I General Education	AGEC-S
AME 220 Introduction to Aerospace Engineering	ENG 221

UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122 A/B, or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I, or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210IN
Tier I General Education	AGEC-S
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
CE 214 Statics	ENG 210
MATH 223 Vector Calculus	MAT 241
PHYS 241 Introductory Electricity & Magnetism or PHYS 261H	PHY 216IN
ARCE 295 Intro to Architectural Engineering	<b>UA ONLY</b>
ARC 220 History of Applied Building Technology	<b>UA ONLY</b>
AME 230 Thermodynamics	ENG 232
<b>4th Semester</b>	
CE 215 Mechanics of Materials	ENG 230
MATH 254 Intro to Ordinary Differential Equations	MAT 262
Tier I General Education	AGEC-S
ARCE 210 Build Information Modeling	<b>UA ONLY</b>
ARCE 223 Building Technology III, EAS I	<b>UA ONLY</b>

UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
CHEM 152 General Chemistry II or CHEM 162/164	CHM 152IN
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210IN
ENGL 102 or 108 or 109H First Year Composition	WRT 102
BME 295C Challenges in Biomedical	<b>UA ONLY &amp; SPRING ONLY</b>
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
BE 284 Biosystems Thermal Engineering (Fall only) OR AME 230 Thermodynamics (supports ME minor)	ENG 232
BME 214 Introduction to Biomechanics (Fall only) OR CE 214 Statistics	ENG 210
MATH 223 Vector Calculus	MAT 241
MCB 181R Introductory Biology I & MCB 181L Biotechnology Laboratory	BIO 181IN
BME 225 or ECE 175 Intro Computer Programming	ENG 175IN
<b>4th Semester</b>	
BME 210 Intermediate BME Design	<b>UA ONLY &amp; SPRING ONLY</b>
MATH 254 Intro to Ordinary Differential Equations	MAT 262
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	PHY 216IN
PSIO 201 Human Anatomy and Physiology I	BIO 201IN
Tier I General Education	AGEC-S

UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
CHEM 152 General Chemistry II or CHEM 162/164	CHM 152IN
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210IN
ENGL 102 or 108 First-Year Composition	WRT 102
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
CE 214 Statics	ENG 210
MATH 223 Vector Calculus	MAT 241
MCB 181R Introductory Biology I & MCB 181L Lab or PLS 240 Plant Biology	BIO 181IN or BIO 184IN
BE 201 Introduction to Biosystems Engineering	UA ONLY
BE 284 Biosystems Thermal Engineering	UA ONLY, FALL ONLY
<b>4th Semester</b>	
MATH 254 Intro to Ordinary Differential Equations	MAT 262
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	PHY 216IN
ECOL 182R/L Introductory Biology II or MIC 205 A/L General Microbiology or PSIO 201 Human Anatomy and Physiology	BIO 181IN BIO 205IN BIO 201IN
Tier I General Education	AGEC-S
BE 205 Engineering Analytic Computer Skills	UA ONLY, SPRING ONLY

UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122 A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
AME 105 Introduction to MATLAB I	ENG 105IN
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210IN
ENGL 102 or 108 First-Year Composition	WRT 102
CHEM 152 General Chemistry II or CHEM 162/164 or MSE 110	CHM 152IN
<b>3rd Semester</b>	
CHEE 201 Elements of Chemical and Environmental Engineering I (Fall Only)	<b>UA ONLY, FALL ONLY</b>
CHEE 201L Elements of Chemical and Environmental Engineering I Computational Lab (Fall Only)	<b>UA ONLY, FALL ONLY</b>
MATH 223 Vector Calculus	MAT 241
CHEM 241 A Lectures in Organic Chemistry or CHEM 242A or 246A	CHEM 235IN
CHEM 243A Organic Chemistry Laboratory or CHEM 247A	CHEM 235IN
Tier I General Education	AGEC-S
AME 205 Introduction to MATLAB II or CE 260 Computer Programming	ENG 205IN (ENG 105IN pre-req or co-req)
<b>4th Semester</b>	
CHEE 202 Elements of Chemical Engineering II (Spring Only)	<b>UA ONLY, SPRING ONLY</b>
CHEE 203 Chemical Engineering Heat Transfer and Fluid Flow	<b>UA ONLY</b>
MATH 254 Intro to Ordinary Differential Equations	MAT 262
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	PHY 216IN
CHEM 241B Lectures in Organic Chemistry or CHEM 242B or CHEM 246B	CHM 236IN

# CIVIL ENGINEERING



UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122 A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 102 or 109H First-Year Composition	WRT 101
ENGR 102 A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
MCB 181R Introductory Biology I & MCB 181L Lab or GEOS 251 Physical Geology	BIO 181IN OR GLG 101IN
PHYS 141 Introductory Mechanics or PHYS 261H	PHY 210IN
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
CE 210 Engineering Graphics	ENG 120IN
CE 214 Statics	ENG 210
MATH 223 Vector Calculus	MAT 241
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H or CHEM 152 General Chemistry II or CHEM 162/164	PHY 216IN OR CHM 152IN
Tier I General Education	AGEC-S
<b>4th Semester</b>	
CE 215 Mechanics of Solids	ENG 230
CE 218 Mechanics of Fluids	<b>UA ONLY</b>
MATH 254 Intro to Ordinary Differential Equations	MAT 262
CE 251 Elementary Surveying	ENG 130IN
Tier I General Education	AGEC-S
CE 260 Computer Programming in Civil Engineering	<b>UA ONLY</b>

# ELECTRICAL & COMPUTER ENGINEERING



UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122 A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102A/B Introduction to engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
ECE 175 Computer Programming for Engineering Applications	ENG 175IN
PHYS 141 Introductory Mechanics or PHYS 261H	PHY 210IN
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
ECE 274A Digital Logic	ENG 274IN
ECE 275 Computer Programming for Engineering Applications II	ENG 276IN
MATH 223 Vector Calculus	MAT 241
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	PHY 216IN
Tier I General Education	AGEC-S
<b>4th Semester</b>	
ECE 220 Basic Circuits	ENG 282IN
PHYS 143 Introductory Optics and Thermodynamics Or PHYS 142/162H	PHY 221IN
MATH 243 Discrete Mathematics in Computer Science <del>or CSC 245 Intro to Discrete Structures</del>	MAT 227
MATH 254 Intro to Ordinary Differential Equations	MAT 262
Tier II General Education	AGEC-S

UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122 A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102 A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
CHEM 152 General Chemistry II or CHEM 162/164 or MSE 110 Solid State Chemistry or MCB 181 R/L Intro Biology I	CHM 152IN OR ENG 110IN OR BIO 181
ECE 175 Computer Programming for Engineering Applications OR CSC 110 Intro to Computer Programming I	ENG 175IN OR CIS 129
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
MATH 223 Vector Calculus	MAT 241
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210IN
Tier I General Education	AGEC-S
Tier II General Education	AGEC-S
SIE 265 Engineering Management I	<b>UA ONLY</b>
<b>4th Semester</b>	
CE 214 Statics	ENG 210
CHEE 201 Elements of Chemical Engineering (Fall Only) OR AME 230 Thermodynamics	ENG 232
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	PHY 216IN
SIE 270 Mathematical Foundations of Systems and Industrial Engineering	<b>UA ONLY &amp; SPRING or SUMMER ONLY</b>
SIE 295S Systems & Industrial Engineering Sophomore Colloquium	<b>UA ONLY</b>
Tier I General Education	AGEC-S



UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122 A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
CHEM 152 General Chemistry II or CHEM 162/164 OR MSE 110	CHM 152IN or ENG 110
AME 105 Introduction to MATLAB I	ENG 105IN
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210IN
<b>3rd Semester</b>	
MATH 223 Vector Calculus	MAT 241
CHEM 241A Lectures in Organic Chemistry AND CHEM 243A Organic Chemistry Laboratory I	CHM 235IN
	AGR 200IN
CHEE 201 Elements of Chemical Engineering I & CHEE 201L Lab	<b>UA ONLY &amp; FALL ONLY</b>
Tier I General Education	AGEC-S
AME 205 Introduction to MATLAB II or CE 260 Computer Programming	ENG 205IN
<b>4th Semester</b>	
CHEE 202 Elements of Chemical Engineering II	<b>UA ONLY &amp; SPRING ONLY</b>
CHEE 270 Intro to Environmental Engineering	<b>UA ONLY</b>
MATH 254 Intro to Ordinary Differential Equations	MAT 262
PHYS 241 Introductory Electricity & Magnetism or PHYS 261H	PHY 216IN
ENGR 211C Engineering Science Module - Statics	<b>UA ONLY</b>
Tier I General Education	AGEC-S

# INDUSTRIAL ENGINEERING



UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122 A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
CHEM 152 General Chem. II or CHEM 162/164 or MSE 110 Solid State Chem. or MCB 181R/L Intro Bio. I Lecture/Lab	CHM 152IN OR ENG 110IN OR BIO 181IN
ECE 175 Comp. Programming for Engineering Applications or CSC 110 Intro to Comp. Programming I	ENG 175IN OR CIS 129
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210IN
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
<b>3rd Semester</b>	
Tier I General Education	AGEC-S
MATH 223 Vector Calculus	MAT 241
PHYS 241 Introductory Electricity & Magnetism or PHYS 261H	PHY 216IN
SIE 250 Introduction to Systems and Industrial Engineering	UA ONLY
SIE 277 Object-Oriented Modeling and Design	UA ONLY
<b>4th Semester</b>	
ECE 207 Elements of Elect. Eng. or ECE 220 Basic Circuits or AME 230 Thermodynamics or CE 214 Statics or CHEE 201 Elements of Chem. Eng.	ENG 260 OR 282IN OR ENG 232 or ENG 210
Tier I General Education	AGEC-S
Tier I General Education	AGEC-S
SIE 265 Engineering Management I	UA ONLY
SIE 270 Mathematical Foundations of SIE	UA ONLY & SPRING OR SUMMER ONLY
SIE 295S Systems and Industrial Engineering Sophomore Colloquium	UA ONLY

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UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122 A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
MSE 110 Solid State Chemistry	ENG 110IN
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210IN
ENGL 102 - First-Year Composition	WRT 102
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
MATH 223 Vector Calculus	MAT 241
PHYS 241 Introductory Electricity & Magnetism or PHYS 261H	PHY 216IN
Tier I General Education	AGEC-S
MSE 280 Introduction to Computer Methods in MSE – Fall only	UA ONLY & FALL ONLY
MSE 222 Introduction to Materials Science I	UA ONLY & FALL ONLY
<b>4th Semester</b>	
MATH 254 Intro to Ordinary Differential Equations	MAT 262
Tier I General Education	AGEC-S
MSE 223R Introduction to Materials Science and Engineering II	UA ONLY & SPRING ONLY
MSE 223L Materials Processing Laboratory	UA ONLY & SPRING ONLY
MSE 345 Thermodynamics	UA ONLY & SPRING ONLY

UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
ENGL 102 or 108 First-Year Composition	WRT 102
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210IN
Tier I General Education	AGEC-S
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
CE 214 Statics	ENG 210
MATH 223 Vector Calculus	MAT 241
PHYS 241 Introductory Electricity & Magnetism or PHYS 261H	PHY 216IN
AME 211 Computer -Aided Drafting and Manufacturing	ENG 211IN
Tier I General Education	AGEC-S
<b>4th Semester</b>	
AME 230 Thermodynamics	ENG 232
AME 250 Dynamics	ENG 220
MATH 254 Intro to Ordinary Differential Equations	MAT 262
ECE 207 Elements of Electrical Engineering	ENG 260
<b>AME 209 Computer Programming in Aerospace and Mechanical Engineering (3 units)</b>	<b>UA only</b>
Tier I General Education	AGEC-S

UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
CHEM 152 General Chemistry I or CHEM 162/164 or MSE 110 Solid State Chemistry	CHM 152IN or ENG 110IN
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210IN
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
CE 214 Statics	ENG 210
GEOS 251 Physical Geology	GLG 101IN
MATH 223 Vector Calculus	MAT 241
MNE 205 Introduction to Mining Engineering	ENG 201
MNE 296A Mineral Resource Engineering Topics	ENG 297
MNE 297A Underground Mine Safety ( <b>offered the week prior to start of the fall semester</b> )	<b>UA ONLY</b>
Tier I General Education	AGEC-A
<b>4th Semester</b>	
CE 215 Mechanics of Solids	ENG 230
MATH 254 Intro to Ordinary Differential Equations	MAT 262
MNE 210 Mineralogy and Petrology for Engineers	<b>UA ONLY &amp; SPRING ONLY</b>
MNE 204 Introduction to Electric Circuits & Mine Power Systems	<b>UA ONLY</b>
Tier I General Education	AGEC-S

# OPTICAL ENGINEERING



**Optics Track:**

UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
MSE 110 Solid State Chemistry	ENG 110IN
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210 IN
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
MATH 223 Vector Calculus Tier I General Education	MAT 241
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	PHY 216IN
Technical Elective – See advisor for course approval	
Tier I General Education	AGEC-S
OPTI 201R Geometrical & Instrumental Optics I	UA ONLY & FALL ONLY
OPTI 201L Geometrical & Instrumental Optics Lab I	UA ONLY & FALL ONLY
<b>4th Semester</b>	
OPTI 202R - Geometrical & Instrumental Optics II	UA ONLY & SPRING ONLY
OPTI 202L - Geometrical & Instrumental Optics Lab II	UA ONLY & SPRING ONLY
OPTI 280 Computer Programming	UA ONLY & SPRING ONLY
OPTI 210 Physics Optics I	UA ONLY & SPRING ONLY
MATH 254 Intro to Ordinary Differential Equations	MAT 262
Tier I General Education	AGEC-S
ECE 207 Elements of Electrical Engineering or ECE 220 Basic Circuits	ENG 260 or ENG 282IN

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<b>Opto-Materials Track:</b>
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UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
MSE 110 Solid State Chemistry	ENG 110IN
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210 IN
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
MATH 223 Vector Calculus Tier I General Education	MAT 241
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	PHY 216IN
Tier I General Education	AGEC-S
OPTI 201R Geometrical & Instrumental Optics I	UA ONLY & FALL ONLY
OPTI 201L Geometrical & Instrumental Optics Lab I	UA ONLY & FALL ONLY
<b>4th Semester</b>	
OPTI 202R - Geometrical & Instrumental Optics II	UA ONLY & SPRING ONLY
OPTI 202L - Geometrical & Instrumental Optics Lab II	UA ONLY & SPRING ONLY
OPTI 280 Computer Programming	UA ONLY & SPRING ONLY
OPTI 210 Physics Optics I	UA ONLY & SPRING ONLY
MATH 254 Intro to Ordinary Differential Equations	MAT 262
Tier I General Education	AGEC-S
ECE 207 Elements of Electrical Engineering or ECE 220 Basic Circuits	ENG 260 or ENG 282IN



**Opto-Electronics Track:**

UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
MSE 110 Solid State Chemistry	ENG 110IN
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210 IN
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
MATH 223 Vector Calculus Tier I General Education	MAT 241
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	PHY 216IN
ECE 175 Computer Programming for Engineering Applications	ENG 175IN
OPTI 201R Geometrical & Instrumental Optics I	UA ONLY & FALL ONLY
OPTI 201L Geometrical & Instrumental Optics Lab I	UA ONLY & FALL ONLY
<b>4th Semester</b>	
OPTI 202R - Geometrical & Instrumental Optics II	UA ONLY & SPRING ONLY
OPTI 202L - Geometrical & Instrumental Optics Lab II	UA ONLY & SPRING ONLY
OPTI 280 Computer Programming	UA ONLY & SPRING ONLY
OPTI 210 Physics Optics I	UA ONLY & SPRING ONLY
MATH 254 Intro to Ordinary Differential Equations	MAT 262
ECE 220 Basic Circuits	ENG 282IN

**Opto-Mechanics Track:**

UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
MSE 110 Solid State Chemistry	ENG 110IN
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210 IN
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
Tier I General Education	AGEC-S
<b>3rd Semester</b>	
MATH 223 Vector Calculus Tier I General Education	MAT 241
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	PHY 216IN
CE 214 Statics	ENG 210
Tier I General Education	AGEC-S
OPTI 201R Geometrical & Instrumental Optics I	UA ONLY & FALL ONLY
OPTI 201L Geometrical & Instrumental Optics Lab I	UA ONLY & FALL ONLY
<b>4th Semester</b>	
OPTI 202R - Geometrical & Instrumental Optics II	UA ONLY & SPRING ONLY
OPTI 202L - Geometrical & Instrumental Optics Lab II	UA ONLY & SPRING ONLY
OPTI 280 Computer Programming	UA ONLY & SPRING ONLY
OPTI 210 Physics Optics I	UA ONLY & SPRING ONLY

## OPTICAL ENGINEERING



MATH 254 Intro to Ordinary Differential Equations

MAT 262

AME 250 Dynamics

ENG 220

Tier I General Education

AGEC-S

UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
CHEM 152 General Chemistry II or CHEM 162/164 or MSE 110 Solid State Chemistry or MCB 181R/L Introductory Biology I	CHM 152IN OR ENG 110IN OR BIO 181IN
ECE 175 Computer Programming for Computer Applications	ENG 175IN
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
SFWE 101 Intro to Software Engineering	UA ONLY
<b>3rd Semester</b>	
MATH 243 Discrete Math	MAT 227
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210IN
Tier I General Education	AGEC-S
ECE 275 Computer Programming II	<b>ENG 276IN</b>
Tier I General Education	<b>AGEC-S</b>
<b>4th Semester</b>	
MATH 254 Intro to Ordinary Differential Equations or MATH 223 Vector Calculus	MAT 262 OR MAT 241
PHYS 241 Introductory Electricity & Magnetism or PHYS 261H	PHYS 216IN
ECE 274A Digital Logic	ENG 274IN
SIE 277 Object-Oriented Modeling and Design	<b>UA ONLY</b>
SFWE 201	<b>UA ONLY</b>

UA COURSE	PIMA CC COURSE
<b>1st Semester</b>	
MATH 122A/B or MATH 125 Calculus I with Applications	MAT 220
CHEM 151 General Chemistry I or CHEM 161/163	CHM 151IN
ENGL 101 or 107 or 109H First-Year Composition	WRT 101
ENGR 102A/B Introduction to Engineering or ENGR 102	ENG 102IN
Tier I General Education	AGEC-S
<b>2nd Semester</b>	
MATH 129 Calculus II	MAT 231
CHEM 152 General Chemistry II or CHEM 162/164 or MSE 110 Solid State Chemistry or MCB 181R/L Introductory Biology I	CHM 152IN OR ENG 110IN OR BIO 181IN
ECE 175 Computer Programming for Computer Applications or CSC 110 Intro to Computer Programming I	ENG 175IN OR CIS 129
ENGL 102 or 108 or 109H First-Year Composition	WRT 102
PHYS 141 Introductory Mechanics or PHYS 161H	PHY 210IN
<b>3rd Semester</b>	
MATH 223 Vector Calculus	MAT 241
PHYS 241 Introductory Electricity & Magnetism or PHYS 261H	PHY 216IN
Tier I General Education	AGEC-S
SIE 250 Introduction to SIE	<b>UA ONLY</b>
SIE 277 Object-Oriented Modeling and Design	<b>UA ONLY</b>
<b>4th Semester</b>	
MATH 254 Intro to Ordinary Differential Equations	MAT 262
Tier I General Education	AGEC-S
Engineering Minor Course (but they can take engineering science option from 5 <sup>th</sup> semester instead: AME 230, CE 214, or ECE 207/220	, ENG 210, ENG 232, or ENGR 260/282IN
SIE 265 Engineering Management I	<b>UA ONLY</b>
SIE 270 Mathematical Foundations of SIE	<b>UA ONLY &amp; SPRING or SUMMER ONLY</b>
SIE 295S SIE Sophomore Colloquium	<b>UA ONLY</b>